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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,331	11/29/2001	Peter Moffatt	476-2071	4986

7590 02/10/2005

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EXAMINER	
SPOONER, LAMONT M	
ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/997,331	MOFFATT ET AL.	
	Examiner	Art Unit	
	Lamont M Spooner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed April 21,2004 have been fully considered but they are not persuasive.

On page 8 paragraph 2 lines 4 and 5, and paragraph of the amendment, Applicant states none of the cited references describes the claimed step "(ii) of accessing a template comprising a sequence of fields... said template comprising information about the manner in which a sequence of alphanumeric characters is to be played such that in use intonation comprising rise and fall in pitch is produced."

However, Hirota teaches accessing a template (Fig. 4-the template is the model that recognizes and matches a pattern, C.2.lines 3, 4) comprising a sequence of fields (Fig 4. "<integer>, <fraction>"-it would have been obvious, and well known that the information entered into the pattern matching area is called a field), each field representing part of a sequence of alphanumeric characters (C.2.line 1-"NL550" represents a string of alphanumeric characters) and said template comprising information about the manner in which a sequence of alphanumeric characters is to be played such that in use intonation is produced (C.6.lines 42-47-the sequence is played in a monotone "manner"), but lacks intonation comprising rise and fall in pitch being produced. However, Sakamoto teaches having a template (table in a preset format, C.5.line 48-67) comprising information about the manner in which a sequence of characters is to be played such that in use intonation comprising rise and fall in pitch is produced, (C.3.lines 56-68, C.5.lines 48-68). Therefore, at the time of the invention, it

would have been obvious to one ordinarily skilled in the art to modify Hirota with Sakamoto by having rising and falling intonation patterns in place of monotone intonation template pattern sequence playback. The motivation for doing so would have been to accommodate differences in meaning due to tonal changes in a word as a direct result of the word in sequence (C.3.line 56-C.4.line24).

Applicant states, on page 8 paragraph 4 line 5-page 9 paragraph 1 line2, "However this is not the case because "en el faiv faiv ou" are not fragments as claimed. As specified in the independent claims fragments are recordings of spoken alphanumeric characters including a plurality of recordings of the same alphanumeric character as spoken at different locations within an utterance. However, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Examiner is not relying on Sakamoto for the templates and selection of fragments based on an accessed template. The Examiner relies on Sakamoto as teaching, including a plurality of characters as spoken at different locations within an utterance (C.3.lines 56-66, C.5.lines 48-68). This in combination with the teachings of Hirota comprises having "fragments as recordings of spoken alphanumeric characters including a plurality of recordings of the same alphanumeric characters including a plurality of recordings of the same alphanumeric character as spoken at different locations within an utterance.

Applicant further states, page 9 paragraph 3, the Examiner lacks motivation to combine the cited prior art references. However, Hirota teaches intonation due to a sequence of fields, and further suggests providing a "adequate" synthetic voice (C.6.lines 48-51). Sakamoto teaches providing an adequate synthetic voice through tonal variation (C.3.line 4-C.4.line 24) and Busardo provides further motivation to combine in achieving the ability to provide an adequate synthesis from a voice talent "C.3.lines 57-59).

2. Claims 1, 2, 4, 5, 7, 9-17, 21- 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota (U.S. Patent No. 6,188,977 Feb. 13, 2001) in view of Busardo (U.S. Patent No. 6,148,285 Nov. 14, 2000), and further in view of Sakamoto (US Patent No. 5,027,409 Jun. 25, 1991).

Hirota, Busardo and Sakamoto are analogous art in that they are of the information synthesis field.

As per **claims 1, 16, 17, 21 and 22**, Hirota discloses a method of playing recordings of spoken alphanumeric characters in sequences comprising:

receiving a sequence of alphanumeric characters to be played (Fig. 7, C.5.lines 1-4, Fig. 1 item 107 "Input Unit"-Natural Language Sentence)

accessing a template (Fig. 4-the template is the model that recognizes and matches a pattern, C.2.lines 3, 4) comprising a sequence of fields (Fig 4. "<integer>, <fraction>"-it would have been obvious, and well known that the information entered into the pattern matching area is called a field), each field representing part of a sequence of alphanumeric characters (C.2.line 1-"NL550" represents a string of alphanumeric

characters) and said template comprising information about the manner in which a sequence of alphanumeric characters is to be played such that in use intonation is produced (C.6.lines 42-47-the sequence is played in a monotone "manner").

accessing a database of fragments (C.6.line 47-to read the alphanumeric character recorded fragments as stated "en el faiv" it is necessary to access a database which contain these specified fragments, C.6.lines 15-17-wherein the notation non-specific dictionary is the database containing the fragments or pronunciation information), as spoken at a particular location within an utterance (C.6.lines 45-47-the location being one character read after the other in the utterance)

for each character in said received sequence of alphanumeric characters (C.6.line 42 "NL550" is the sequence of characters), selecting a fragment on the basis of the accessed template (C.6.lines 43-47- "en el faiv faiv ou" are selected based on the accessed template in the template/dictionary database); and

passing said selected fragments to a player and playing the fragments (C.6.lines 45, 46).

Hirota does not disclose:

each of a plurality of said fragments being a recording of a spoken alphanumeric character as spoken at a particular location within an utterance;

However, Busardo teaches recording of a spoken set of fragments (C.3.lines 13-16-"voice actor" records the fragments into a database). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to combine Hirota with Busardo by having the fragments recorded by a voice talent. The motivation would

have been to have a database of spoken recorded sounds that could be played once related to the input character sequence which would render a more human like play instead of the well known robotic sounding play.

Hirota in view of Busardo does not disclose:

a) intonation comprising rise and fall in pitch is produced.

c) said database of fragments comprising, for the same alphanumeric character a plurality of fragments each being a recording of that alphanumeric character as spoken at a different location within an utterance.

However, Sakamoto teaches having a database (Fig. 1 "Voice-Data Memory Group) for storing different intonations for the same character as spoken at a different location within an utterance (C.3.lines 56-67), further Sakamoto teaches having a template (table in a preset format, C.5.line 48-67) comprising information about the manner in which a sequence of characters is to be played such that in use intonation comprising rise and fall in pitch is produced. (C.3.lines 56-68, C.5.lines 48-68). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Hirota and Busardo with Sakamoto by having rising and falling intonation patterns of fragments in place of monotone intonation template fragment pattern sequence playback. The motivation for doing so would have been to accommodate differences in meaning due to tonal changes in a word as a direct result of the word in sequence (C.3.line 56-C.4.line24) and to provide an intonation changes depending on the block placement of the fragment in order to improve voice data output (Sakamoto C.2.lines 34, 35), which would provide the benefit contributing concise voice

data due to tone verification of output (C.1.lines 33, 34, 35) in multiple situations (C.3.lines 50-55).

As per **claim 2**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 1, upon which claim 2 depends. Hirota further discloses:

said accessed template (Fig. 4 "<NL_PRODUCT>") is selected from a database of templates (Fig. 4) on the basis of the received sequence of alphanumeric characters (C.5.lines 1-4).

As per **claim 4**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 2, upon which claim 4 depends. Hirota further discloses:

at least some of the templates in said database contain specified alphanumeric characters in at least some of the template fields (Fig. 4 "<NL_PRODUCT>"-the specified characters in this case are the "N" and "L", it would be obvious to have a numeric specified character if desired).

As per **claim 5**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 4, upon which claim 5 depends. Hirota further discloses:

said accessed template is selected from the database of templates (Fig. 4) by matching at least some of the received sequence of alphanumeric characters with specified alphanumeric characters in the template fields (C.2.lines 1-4, Fig. 4 "<NL_PRODUCT>" is matched with C.6.line 42 "NL550").

As per **claim 7**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 2, upon which claim 7 depends. Hirota further discloses:

said database of templates (Fig. 4, C.4.lines 22-24) comprises sets of templates each set being suitable for use with a particular type of alphanumeric character sequence (Fig. 4, C.4.lines 33-38-the types of sequences suitable are integer, fraction, date, onomatopoetic, etc.).

As per **claim 9**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 1, upon which claim 9 depends. Hirota further discloses:

said receiving a sequence of alphanumeric characters further comprises receiving values of one or more parameters (C.4.lines 45-47-the parameters being the entry must be between greater than 1 and equal to or smaller than 12).

As per **claim 10**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 9, upon which claim 10 depends. Hirota further discloses:

said parameters specifies a type of alphanumeric character sequence (C.4.lines 33, 42-44-the specified sequence is month, day, year)..

As per **claim 11**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 1, upon which claim 11 depends. Hirota further discloses:

said alphanumeric character sequence is selected from a date (C.6.lines 20-24).

As per **claim 12**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 1, upon which claim 12 depends. Hirota further discloses:

said database of fragments comprises at least four fragments for a plurality of said alphanumeric characters (C.6.line 46 “en el faiv faiv ou”).

Hirota in view of Busardo do not disclose:

having four fragments for each of a plurality of said alphanumeric characters.

However, Sakamoto teaches having four fragments corresponding to the same character (C.8.lines 42-52,ty-11, ty-12, ty-21, ty-22) with different intonations for each. Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to combine Hirota, Busardo, and Sakamoto by having multiple fragments for each of a plurality of characters. The motivation for doing so would have been to divide information notification into tabular form having different intonations corresponding to information position (C.8.lines 31-41).

As per **claim 13**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 12, upon which claim 13 depends. Hirota further discloses:

said four fragments are a recording of an alphanumeric character at each of the following positions within an utterance, where a subgroup is a part of an alphanumeric character sequence; start of a subgroup; middle of a subgroup; end of a subgroup; and end of an utterance (C.6.line 46-"en" is the start, "el" is the middle of the subgroup, "faiv" is at the end of the subgroup, and the space is the end of the subgroup-the space being silence).

Hirota in view of Busardo does not disclose:

said four fragments are a recording of the same alphanumeric character.

However, Sakamoto teaches having four fragments corresponding to the same character (C.8.lines 42-52,ty-11, ty-12, ty-21, ty-22) with different intonations for each. Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to combine Hirota, Busardo, and Sakamoto, by having multiple recordings of the same alphanumeric character. The motivation for doing so would have

been to divide information notification into tabular form having different intonations corresponding to information position (C.8.lines 31-41).

As per **claim 14**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 2, upon which claim 14 depends. Hirota further discloses:

if said selected template is incompatible with said received alphanumeric data sequence, then said template is adapted to be compatible with the received alphanumeric data sequence (C.6.lines 62-66-the addition to the template database would then adapt the template to be compatible).

As per **claim 15**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 1, upon which claim 15 depends. Hirota in view of Sakamoto does not disclose:

the alphanumeric character sequence is received, the method of claim 1 completed and the sequence played in real time

However, Busardo teaches the synthesis of speech is completed in real time (C.4.lines 5-7). Therefore it would have been obvious, at the time of the invention to one ordinarily skilled in the art to modify Hirota, Sakamoto with Busardo by playing a sequence in real time. The motivation for doing so would have been to have the desired speech information played in real-time due to the alphanumeric data entry which would enable one to compete with the high standards of real-time information processing instead of having a response at a later time.

As per **claim 23**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 16, upon which claim 23 depends. Hirota in view of Sakamoto does not disclose:

an automated directory number enquiry system comprising an apparatus as claimed in claim 16.

However, Busardo teaches having an automated directory number system (C.4.lines 5-7). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Sakamoto with Busardo by having an automated directory number enquiry system. The motivation for doing so would have been to enquire a number from a directory and have the information processed and synthesized automatically, without having to manually instruct the system step by step for the acquisition of the desired information.

3. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota in view of Busardo, in further view of Sakamoto, and in further view of Pirz et al. (U.S. Patent RE 32,012 Oct. 22, 1985).

Hirota, Busardo, Sakamoto and Pirz et al. are analogous art because they are of the speech recognition field.

As per **claim 3**, Hirota and Busardo disclose all of the limitations of claim 2, upon which claim 3 depends. Hirota in view of Busardo, in further view of Sakamoto do not disclose:

the templates in said database are prioritized.

However, Pirz et al. teaches prioritizing (ordering) templates. Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Busardo, Sakamoto with Pirz et al. by prioritizing the templates in the database. The motivation for doing so would have been to process information into

voiced representations and having the templates that correspond to the characters prioritized for the purpose of locating frequently used templates faster as they could have a higher priority than infrequently used templates.

As per **claim 6**, Hirota and Busardo disclose all of the limitations of claim 3, upon which claim 6 depends. Hirota further discloses:

said accessed template is selected from the database of templates on the basis of the received sequence of alphanumeric characters (C.5.lines 38-41).

Hirota in view of Busardo, in further view of Sakamoto do not disclose:

said accessed template is selected from the database of templates on the basis of the priority of the templates as well as on the basis of the received sequence of alphanumeric characters.

However, Pirz et al. teaches selecting the template on the basis of its priority (C.4.lines 51-54, 65-68). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Busardo, Sakamoto with Pirz et al. by selecting templates based on priority. The motivation for doing so would have been to process information into voiced representations and having the templates that correspond to the characters selected based on prioritization as well as the order of characters received, for the purpose of locating frequently used templates faster as they could have a higher priority than infrequently used templates and having a filtering criteria for the reception of the characters so that desired templates will be accessed that better accommodate the sequence of alphanumeric characters.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota in view of Busardo, in further view of Sakamoto, and in further view of Huang et al. (U.S. Patent No. 5,913,193 Jun. 15, 1999).

Hirota, Busardo, Sakamoto and Huang et al. are analogous art because they are of the information synthesis field.

As per **claim 8**, Hirota, Busardo, and Sakamoto disclose all of the limitations of claim 1, upon which claim 8 depends. Hirota in view of Busardo and in further view of Sakamoto do not disclose:

said template information about the manner in which a sequence of alphanumeric characters is to be played comprises information about pauses.

However, Huang et al. teaches having information about the manner in which a string is to be played contains information about pauses (C.4.lines 39-41). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Busardo, Sakamoto with Huang et al. by incorporating information about pauses into the template. The motivation for doing so would have been to attempt to eliminate the effect of having two different words or for example a proper name and a middle initial, pronounced together as one word due to insufficient pause information.

5. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota in view of Busardo, in further view of Sakamoto, and in further view of Ronca et al. (U.S. Patent No. 6,546,366 filed Feb.26, 1999).

Hirota, Busardo, Sakamoto, and Ronca et al. are analogous art because they are of the text to speech conversion field.

As per **claim 18**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 16, upon which claim 18 depends. Hirota in view of Busardo and in further view of Sakamoto do not disclose:

said player is provided by an interactive voice response (IVR) system.

However, Ronca et al. teaches having the messaging accessible by an IVR system (C.4.lines 61-66). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Busardo, Sakamoto, with Ronca et al. by having a player provided by an IVR. The motivation would have been to convert text to speech and allow an interactive voice response system control the player which will enable an user friendly and easy method of communication by the user with the player.

As per **claim 19**, Hirota, Busardo and Sakamoto disclose all of the limitations of claim 16, upon which claim 19 depends. Hirota in view of Busardo and in further view of Sakamoto do not disclose:

said processor is integral with an IVR system.

However, Ronca et al. teaches integrating the processing systems (of voice messaging and text messaging) with an IVR System (C.1.lines 60-64, C.4.lines 58-60, 63-66). Therefore it would have been obvious, at the time of the invention, to one ordinarily skilled in the art to modify Hirota, Busardo, Sakamoto with Ronca et al. by integrated the processor with an IVR system. The motivation for doing so would have been to allow the IVR system to integrate the processing of the information received

and synthesized for the purpose of allowing the IVR to encompass or be an integral part of the synthesis while interacting with the user via voice response.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Akamine et al. (US Patent No. 6,161,091 Dec. 12, 2000) teaches altering the intonation with template information to provide natural sounding speech synthesis.
- Pertrushin (US Patent No. 6,151,571 Nov. 21, 2000) teaches having vocabulary data, fragments, recorded and represented in a template providing intonation information corresponding to a rise and fall in pitch.
- Goudie (US Patent No. 4,797,930 Jan. 10, 1989) teaches having linguistic units identified in a template setting, wherein the linguistic units comprise a rise and fall in pitch information and further comprise pitch patterns for each recorded syllable, and playback of the tonal information.
- Holm et al. (US Patent No. 6,185,533) teaches having a fragment database including syllables and location information mapped into a template to produce natural human sounding prosody in speech synthesis.
- Kochaanski et al. (US Patent No. 6,810,378 filed Sep. 24, 2001) teaches having a prosody control sequence template wherein fragments are selected based on template and fragment location, thereby generating a stylized synthesized voice control signal.

- Minowa et al. (US Patent No. 6,438,522 filed Sep. 22, 1999) teaches having template information specifying pitch and having fragments selected based on selected prosodic templates, and further synthesizing said fragments to resemble natural speech.
- Huang et al. (US Patent No. 5,905,972 May 18, 1999) teaches having prosodic databases holding fundamental frequency templates for use in speech synthesis,
- Coorman et al. (US Patent No. 6,665,641 filed Nov. 12, 1999) teaches recording word units fragments and having pitch patterns associated with each word for natural sounding speech synthesis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M Spooner whose telephone number is 703/305-8661. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 703/305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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01/28/05

PATRICK N. EDOUARD
PRIMARY EXAMINER